CONTENTS OF VOLUME 77 Nos 1–6

NUMBER 1—JANUARY

Editorial
By E. A. Davis 1

Enhanced cathodoluminescence from nano-indentations in MgO
By M. M. Chaudhri 7

A model structure of the mechanical twin in stoichiometric lithium niobate single crystal
By B. M. Park, K. Kitamura, K. Terabe, Y. Furukawa and E. Suzuki 17

Atomic force microscopy of slip lines on the surface of a fatigued nickel single crystal
By A. Schwab, O. Meißner and C. Holste 23

On the formation mechanism of faulted dipolar loops in γ-TiAl
By Y. G. Zhang, C. H. Lei, P. Li, C. Q. Chen and M. C. Chaturvedi 33

Analysis of indentation loading curves obtained using conical indenters
By Y.-T. Cheng and C.-N. Cheng 39

Effect of ternary addition on the formation of Cu_3Pt and CuPt order phases in the Cu–Pt system
By K. Mitsui, M. Takahashi and T. Takezawa 49

Excitonic states in the one-dimensional Hubbard model
By M. Gulacsi and A. R. Bishop 59

NUMBER 2—FEBRUARY

The elastic compliance of a surface film on a substrate
By E. H. Yoffe 69

Fast, faster, and fastest cracks
By J. J. Gilman 79

Observation by synchrotron radiation of deformation behaviour in single-crystal Cu under uniaxial tension
By K. H. Kim, Y. M. Koo and Y. W. Chang 83

Heterogeneous nucleation of lead on quasicrystals
By A. Singh and A. P. Tsai 89

A hexagonal phase related to quasicrystalline phases in Zn–Mg–rare-earth system
By A. Singh, E. Abe and A. P. Tsai 95

Electrical resistivity and Seebeck coefficient of hot-pressed $YbAl_3$ over the temperature range 150–700 K
By D. M. Rowe, G. Min and V. L. Kuznestsov 105

Amorphization of Zr–Al–Ni–Cu during cold rolling of elemental foils at ambient temperatures
By A. Sagel, H. Sieber, H.-J. Fecht and J. H. Perepezko 109

A new metastable alumina polymorph with monoclinic symmetry
By I. Levin and D. G. Brandon 117

NUMBER 3—MARCH

Energies of the atomic steps formed on low-index surfaces of fcc metals
By S. Brochard, P. Beauchamp and J. Grilhé 125

Voidites in polycrystalline natural diamond
By J. H. Chen, D. Bernaerts, J. W. Seo, G. Van Tendeloo and H. Kagi 135

Deviations from Volterra dislocations
By G. Schoeck 141

A new model for the (2×1) reconstructed $CoSi_2$–Si(100) interface
By V Buschmann, L. Fedina, M. Rodewald and G. Van Tendeloo 147

A model for the photostructural changes in amorphous chalcogenides
By K. Shimakawa, N. Yoshida, A. Ganjoo, Y. Kuzukawa and J. Singh 153

The Meyer–Neldel rule in non-metallic $YBa_2Cu_3O_y$ films
By F. Abdel-Wahab, K. Shimakawa and I. Hirabayashi 159

The crystal structure of a γ-(Al–Cu–Ru–Si) cubic phase: a new approximant phase for the Al–Cu–Ru icosahedral quasicrystal
By K. Sugiyama, T. Kato, K. Saito and K. Hiraga 165

NUMBER 4—APRIL

Plastic deformation of InP at temperatures between 77 and 500 K
By T. Suzuki, T. Nishisako, T. Taru and T. Yasutomi 173

Amorphous–nanocrystalline–amorphous phase transformation in Se induced by mechanical attrition
By F. Q. Guo and K. Lu 181

Towards rapid evaluation of the elastic interactions among three-dimensional dislocations
By G. J. Rodin 187

Structure transition in a ZnO grain boundary
By F. Sarrazit, R. C. Pond and N. A. Kiselev 191

Segregation of yttrium ions to domain boundaries of tetragonal zirconia
By H. Ogawa, A. Yasuda, N. Shibata, Y. Ikuhara and T. Sakuma 199

The structure of a Frank–Kasper decagonal quasicrystal in the Zn–Mg–Dy system: comparison with the Al–Ni–Co system
By E. Abe, T. J. Sato and A. P. Tsai 205

Composition and stability of decagonal quasicrystals in the Zn–Mg–rare-earth systems
By T. J. Sato, E. Abe and A. P. Tsai 213

Solid-state Aharonov–Bohm effect at dislocations in semiconductors
By T. Figielski, T. Wosiński, A. Makosa, W. Dobrowolski and J. Raczyńska 221

NUMBER 5—MAY

Point-defect properties and threshold displacement energies in Cu_3Au
By F. Gao, D. J. Bacon and S. Newall 229

Effect of step-loading history and related grain-boundary fatigue in freshwater columnar ice in the brittle deformation regime
By V. Gupta, J. Bergström and C. R. Picu 241

Atomic-scale mapping of local lattice distortions in highly strained coherent islands of $In_xGa_{1-x}As/GaAs$ by high-resolution electron microscopy and image processing
By S. Kret, C. Delamarre, J. Y. Laval and A. Dubon 249

On the Kelvin–Stamenovic estimate of the shear modulus of a foam
By D. Weaire 257

An optical study of silver particles fabricated by ion implantation in a silicon polymer
By A. L. Stepanov, R. I. Khaibullin and I. B. Khaibullin 261

Low-frequency oscillations in nanoclusters of lanthanum trifluoride
By V. L. Bulatov, R. W. Grimes and A. H. Harker 267

Microtwinning in $HoFe_6Ge_6$ studied by high-resolution electron microscopy and electron diffraction
By O. Oleksyn, H.-U. Nissen and R. Wessicken 275

Magnetic multilayers as a structural component in a series of $BaO:TiO_2:Fe_2O_3$ compounds
By L. A. Bendersky and J. E. Bonevich 279

Parametrization of electromagnetic radiation pulses obtained by triaxial fracture of granite samples
By A. Rabinovitch, V. Frid and D. Bahat 289

Evidence for a temperature dependence of the intrinsic dipoles in chalcogenide glasses
By S. D. Baranovskii, V. K. Tikhomirov and G. J. Adriaenssens 295

The non-trivial dispersion of Y_2BaCuO_5 particles trapped in the $YBa_2Cu_3O_{7-x}$ crystal matrix
By N. Vandewalle, E. Pirad, R. Cloots and M. Ausloos 301

NUMBER 6—JUNE

On the primary creep of Ni_3Al
By W. Zhu, D. Fort, I. P. Jones and R. E. Smallman 307

Empirical and *ab initio* local-density approximation studies of an MgO(100) twist grain boundary
By J. H. Harding and C. Noguera 315

Studies of the microhardness and dislocation mobility in C_{60} crystals under oxidizing conditions
By I. Manika, J. Maniks and J. Kalnacs 321

Simulation of dislocation single kinks in γ-TiAl using embedded-atom method potentials
By J. P. Simmons, S. I. Rao and D. M. Dimiduk 327

A new model for nucleation in bulk metallic glasses
By K. F. Kelton 337

Thermal stability of electrical and magnetic properties of a nanocrystalline Hf–Ni alloy
By Z. F. Dong, L.-M. Peng, R. Lück and K. Lu 345

Electron-energy-loss spectroscopy study of the electronic structure of a stable decagonal quasicrystal $Al_{70}Ni_{15}Co_{15}$
By M. Terauchi, H. Ueda, M. Tanaka, A.-P. Tsai, A. Inoue and T. Masumoto 351

A high-resolution electron microscopy study of the structure of the (1/0,2/1) and (1/1,1/1) decagonal approximants in Ga_6Mn_5
By J. S. Wu, X. Z. Li and K. H. Kuo 359

Critical behaviour in the temperature dependence of the coercivity for nanocrystalline soft-magnetic materials
By K. Suzuki and J. M. Cadogan 371

Subject index 381

Index of authors (with titles of papers) 385